



National Transportation Safety Board

Marine Accident Brief

Capsizing of Towing Vessel *Megan McB*

Accident no.	DCA13LM027
Vessel name	<i>Megan McB</i>
Accident type	Capsizing
Location	Lock and Dam 7, Mississippi River mile marker 702.5, near La Crescent, Minnesota
Date	July 3, 2013
Time	0558 central daylight time (coordinated universal time – 5 hours)
Injuries	One fatality
Damage	\$500,000
Environmental damage	50 gallons of diesel fuel discharged into the water
Weather	Winds at 3 knots from the south, air temperature 86°F, water temperature 81°F
Waterway information	Mississippi River, Lock and Dam 7, water flow rate of 88,900 cubic feet/second

On July 3, 2013, at 0558 local time, the uninspected towing vessel *Megan McB* lost engine throttle control while the crew was trying to maneuver the vessel into the main lock of Lock and Dam 7 on the Mississippi River near La Crescent, Minnesota. Without engine throttle control to maneuver the vessel, the strong river current swept the *Megan McB* into gate no. 1 of the dam, where the vessel became pinned and capsized. One crewmember died in the accident. The vessel was later refloated; its damage was estimated at \$500,000.



The *Megan McB* lying on its port side south of gate no. 1 of Lock and Dam 7 on the Mississippi River. The photo looks northeast across the river. (Photo by the United States Coast Guard)

Capsizing of Towing Vessel *Megan McB*

The *Megan McB* was a new vessel placed in service in the spring of 2013. It was owned by Brennan Marine Inc. of La Crosse, Wisconsin. Brennan Marine used the *Megan McB* to provide towing services in the vicinity of La Crosse, including lock assistance, short-haul line boat service between locks 5A and 8, moving Brennan Marine construction and repair barges, and serving as a fleeting tug. The *Megan McB* was the only one of Brennan Marine's vessels equipped with electronic engine control throttles (as opposed to air throttles). One of the aspects of the electronic throttles was that each time the vessel's diesel engines were started, the "station select" button needed to be pressed on the electronic control head (see below). The control head controlled both the marine transmissions (forward and astern controls) and the main diesel engines' speed. If the station select button on the control head was not pressed after engine startup, the electronic throttles would not control the engines.

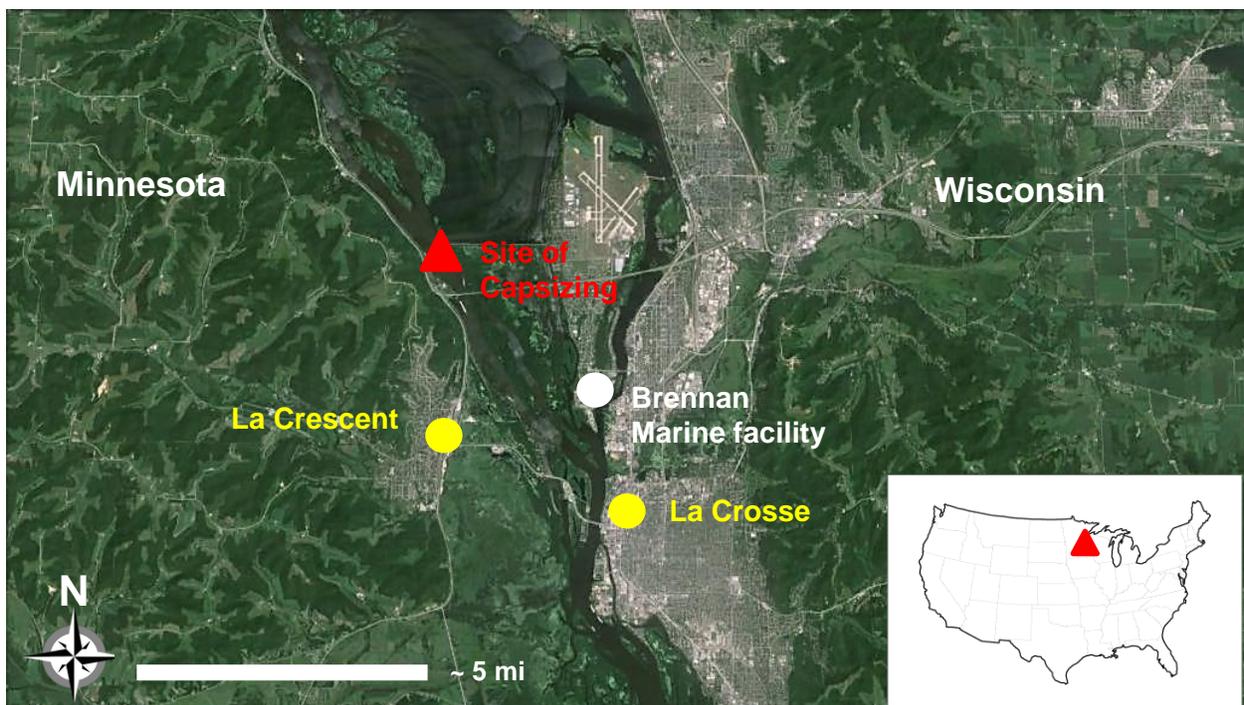


The electronic control head for the *Megan McB*'s engine control throttles. (Photo by Twin Disc Inc.)

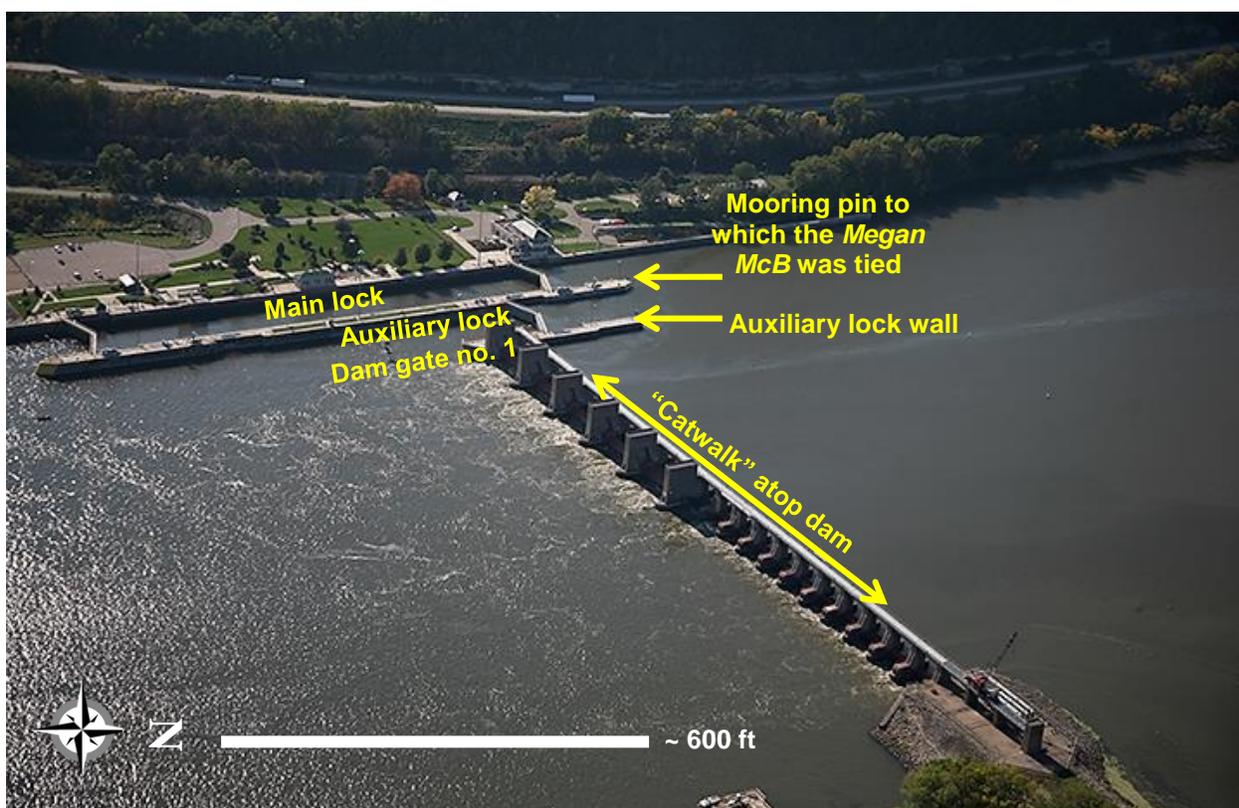
Crew shift changes took place shoreside so that the next crew could board the vessel and the previous crew could depart. Brennan Marine's procedures for crew shift changes included switching power between the two onboard generators before the next crew arrived. This procedure was carried out every 12 hours when the shift changes occurred (at 0600 and 1800) and the vessel was not under way.

The pilot who would operate the *Megan McB* at the time of the capsizing joined the vessel crew in the middle of a shift, at 0100 on the morning of the accident. He had been called in unexpectedly because the pilot originally scheduled to operate the vessel that day had received a phone call that his wife had been in a car accident. The original pilot departed the vessel at the Brennan Marine facility in La Crosse shortly after his shift began at 1800 on July 2. A substitute pilot took his place until the accident pilot arrived early the next morning. The accident pilot told investigators that he had never previously served as the *Megan McB*'s pilot. He had only piloted Brennan Marine vessels equipped with air throttles.

Capsizing of Towing Vessel *Megan McB*



Satellite image of the area near the capsizing. (Background by Google Earth)



Aerial view of Lock and Dam 7, looking west across the river. (Photo by the Coast Guard)

On the morning of July 3, the *Megan McB* assisted two tows with entering the main lock at Lock and Dam 7, including nine barges pushed by the towing vessel *Bill Berry*. The first mate on board the *Megan McB* described the assistance as meeting a tow about 1,200 feet above the lock entrance, where the *Megan McB* crew would attach a line to the lead barge. The

Capsizing of Towing Vessel *Megan McB*

Megan McB would then push or pull the tow either toward or away from the lock wall as directed by the pilot on the vessel pushing the tow at the stern. About 0500 on July 3, while the nine barges pushed by the *Bill Berry* were locking down in the main lock, the crews of the *Megan McB* and the *Bill Berry* tied off their vessels and attended to onboard duties while waiting to rejoin the barges.

Also during this time, the *Megan McB* crew prepared for the upcoming shift change scheduled for 0600, including generator switchover and shutting down the diesel engines. About 0545, the first mate, who was in the engine room at the time, informed the pilot in the wheelhouse that he was about to switch generators from no. 2 to no. 1. In response, the pilot shut down the electronics on the bridge, and the first mate completed the generator switchover in the engine room. As expected, the electrical power to the electronic control head in the wheelhouse was deactivated during this process. About 0546, the first mate restarted the engines.

Nine minutes later, about 0555, the pilot prepared to maneuver the *Megan McB* into the main lock. He radioed for the crew to let go the mooring line. The deckhand proceeded to the bow and removed the line from the mooring pin on the pier. The pilot then attempted to engage the engines by moving both throttles forward on the electronic control head; however, because he had not pressed the station select button, the engines did not respond. The pilot told investigators that he did not know that he had to press this button to control the engines; he had received no instruction in using the electronic control head.

On realizing that he did not have engine control, the pilot radioed the deckhand to throw the mooring line back onto the mooring pin. The deckhand attempted to do so, but missed. He then recovered the line for a second attempt. However, by that time, the strong and swift river current—estimated to be about three times stronger than usual due to heavy rainfall—had carried the *Megan McB* too far away from the mooring pin. The deckhand and the first mate ran up to the wheelhouse, but moments later, the deckhand ran down the interior stairs. He did not explain why he left the wheelhouse or where he was going.

The river current swept the *Megan McB* into gate no. 1 of the dam. The top of the vessel's starboard-side superstructure made contact with the catwalk atop the dam, causing the vessel's hull to be pushed out from underneath the superstructure, while the superstructure remained pinned against the catwalk. As a result, the *Megan McB* capsized onto its port side and came to rest just south of gate no. 1, where concrete baffle blocks held the vessel in place. The pilot and first mate were able to escape through the wheelhouse windows, which the strong current had broken, but the deckhand was missing. The pilot on board the *Bill Berry* notified the assistant lock operator, who launched a rescue boat onto which the pilot and the first mate were retrieved about 8 minutes later. The search continued for the missing deckhand. About 1300 that afternoon, divers located the deckhand's body on the second deck of the *Megan McB*'s superstructure.

Capsizing of Towing Vessel *Megan McB*



Lock and Dam 7, looking east across the river from atop the auxiliary lock wall. The *Megan McB* lies just past gate no. 1. In this photo, the gates are in their fully closed position to reduce water flow. However, at the time of the capsizing, the gates were fully open. (Photo by the Coast Guard)

On July 16, 2013, salvage efforts were concluded when Brennan Marine removed the *Megan McB* from the dam. The vessel had not sustained hull damage; however, flooding damage of interior spaces and equipment was estimated at \$500,000. As of the date of this report, the *Megan McB* remains out of service at the Brennan Marine facility.

Brennan Marine did not have a process for instructing first-time *Megan McB* pilots about the vessel's electronic engine control throttles, even though the need to press the station select button for engine control was unique to the *Megan McB*. Similarly to the accident pilot, the pilot originally scheduled to work the 1800–0600 shift on July 2 and 3 also did not know how to operate the electronic control head when he first piloted the *Megan McB*. He told investigators that he too did not have engine control the first time he got under way with the vessel, but that, in his case, the mate who had served on board the *Megan McB* during the delivery transit from the shipyard came to his aid and alerted him about pressing the station select button.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the capsizing of towing vessel *Megan McB* was the replacement pilot's unfamiliarity with the vessel's electronic engine control throttles, which resulted in his inability to avoid gate no. 1 of Lock and Dam 7. Contributing to the capsizing was Brennan Marine's lack of effective procedures to ensure that the *Megan McB* was operated by a replacement pilot familiar with the electronic engine control throttles, which were unique to this one vessel in the company fleet.

Vessel Particulars

Vessel	<i>Megan McB</i>
Owner/operator	Brennan Marine Inc.
Port of registry	La Crosse, Wisconsin
Flag	United States
Type	Towing vessel
Year built	2012
Official number (US)	1242647
Construction	Welded steel
Length	65.1 ft (19.8 m)
Draft	10.1 ft (3.1 m)
Beam/width	26.1 ft (8 m)
Gross tonnage	114
Engine power	1,200 hp (895 kW)
Persons on board	3

For more details about this accident, visit www.nts.gov/investigations/dms.html and search for NTSB accident ID DCA13LM027.

Adopted: September 4, 2014

The NTSB has authority to investigate and establish the probable cause of any major marine casualty or any marine casualty involving both public and nonpublic vessels under 49 *United States Code* 1131. This report is based on factual information either gathered by NTSB investigators or provided by the Coast Guard from its informal investigation of the accident.